

CLAIMS

We Claim:

1           1. An adjustable seating height wheelchair, comprising:  
2           a wheelchair frame providing structural support for the  
3 wheelchair;  
4           a plurality of wheels, attached to the frame, for allowing the  
5 wheelchair to roll;  
6           a seating surface, for providing a seat for a user of the  
7 wheelchair; and  
8           an adjustable seating height mechanism, for mechanically  
9 moving the seating surface between at least two height levels, the  
10 adjustable seating height mechanism including:  
11           a pneumatic device which may be extended and retracted  
12 under pneumatic pressure, the pneumatic device coupled to the  
13 adjustable seating height mechanism such that when extended,  
14 the pneumatic device raises the adjustable seating height  
15 mechanism to one of the at least two height levels, and when  
16 retracted, lowers the adjustable seating height mechanism to  
17 another of the at least two seating height levels,  
18           a pneumatic storage tank, coupled to the pneumatic  
19 device, for storing a gaseous fluid under pressure and  
20 providing pressurized gaseous fluid to the pneumatic device to  
21 extend the pneumatic device, and

22           a control valve, coupled to the pneumatic storage tank  
23           and the pneumatic device, for controlling the flow of the  
24           gaseous fluid under pressure to and from the pneumatic device  
25           such that when actuated, the pneumatic device may be  
26           controllably extended and retracted.

1           2.   The adjustable seating height wheelchair of claim 1,  
2           further comprising:

3           a fill valve, coupled to the pneumatic storage tank, for  
4           allowing the pneumatic storage tank to be periodically recharged.

1           3.   The adjustable seating height wheelchair of claim 1,  
2           further comprising:

3           at least one locking pin, coupled to the adjustable seating  
4           height mechanism, for locking the adjustable seating height  
5           mechanism at at least one of the two seating height levels.

1           4.   The adjustable seating height wheelchair of claim 1,  
2           further comprising:

3           a pump, mounted to the wheelchair, for recharging the  
4           pneumatic storage tank.

1           5.    The adjustable seating height wheelchair of claim 1,  
2    wherein said adjustable seating height mechanism further comprises  
3    a scissors lift coupled between the frame and the seating surface,  
4    to uniformly lift the seating surface while maintaining the seating  
5    surface in a horizontal position.

1           6.    The adjustable seating height wheelchair of claim 1,  
2    wherein said pneumatic device further comprises a pneumatic  
3    cylinder.

1           7.    The adjustable seating height wheelchair of claim 1,  
2    wherein said pneumatic device further comprises an air bag.

1           8.    A method of adjusting the seating height of a wheelchair  
2    comprising a wheelchair frame providing structural support for the  
3    wheelchair, a plurality of wheels, attached to the frame, for  
4    allowing the wheelchair to roll, a seating surface, for providing  
5    a seat for a user of the wheelchair, and an adjustable seating  
6    height mechanism, the method comprising the steps of:

7 storing, in a pneumatic storage tank, coupled to the pneumatic  
8 device, a gaseous fluid under pressure,  
9 extending and retracting a pneumatic device under pneumatic  
10 pressure supplied by the pneumatic storage tank, the pneumatic  
11 device coupled to adjustable seating height mechanism such that  
12 when extended, the pneumatic device raises the adjustable seating  
13 height mechanism to one of the at least two height levels, and when  
14 retracted, lowers the method of adjusting the seating height  
15 mechanism to another of the at least two seating height levels, and  
16 controlling, with a control valve, coupled to the pneumatic  
17 storage tank and the pneumatic device, the flow of the gaseous  
18 fluid under pressure to and from the pneumatic device such that  
19 when actuated, the pneumatic device may be controllably extended  
20 and retracted.

1 9. The method of adjusting the seating height of a wheelchair  
2 of claim 8, further comprising the step of recharging the pneumatic  
3 storage tank with a fill valve, coupled to the pneumatic storage  
4 tank recharged.

1 10. The method of adjusting the seating height of a  
2 wheelchair of claim 8, further comprising the step of locking, with

3 at least one locking pin coupled to the adjustable seating height  
4 mechanism, the adjustable height mechanism to at least one of the  
5 two seating height levels.

1 11. The method of adjusting the seating height of a  
2 wheelchair of claim 8, further comprising the step of recharging  
3 the pneumatic storage tank using an on-board pump coupled to the  
4 wheelchair.

1 12. The method of adjusting the seating height of a  
2 wheelchair of claim 8, further comprising the step of uniformly  
3 lifting the seating surface while maintaining the seating surface  
4 in a horizontal position using an adjustable seating height  
5 mechanism includes a scissors lift coupled between the frame and  
6 the seating surface.

1 13. The method of adjusting the seating height of a  
2 wheelchair of claim 8, wherein the pneumatic device further  
3 comprises a pneumatic cylinder.

14. The method of adjusting the seating height of a wheelchair of claim 8, wherein the pneumatic device further comprises an air bag.